

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A method of locating a mobile terminal in a mobile communications network after location information for the mobile terminal has been lost by a serving mobile switching center (MSC), the method comprising the steps of:

prior to losing the location information:

detecting when said mobile terminal has entered a new roaming area within the service area of the serving MSC, said new roaming area being comprised of two or more location areas, each of said two or more location areas being comprised of one or more cells;

obtaining roaming area information of said new roaming area; and

storing said roaming area information in a database; and

after losing the location information:

retrieving by the serving MSC, the roaming area information from the database; and

primary paging said mobile terminal within said new roaming area using said roaming area information stored in said database.

2. (Canceled)

3. (Currently Amended) The method according to claim ~~[[2]]~~ 1, wherein said step of storing includes sending a update subscriber data message having said roaming area information to said database.

4. (Original) The method according to claim 3, wherein said update subscriber data message is based on a mobile applications protocol.

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5. (Original) The method according to claim 3, further comprising receiving an update subscriber acknowledgment or negative acknowledgment message from said database.

6-9. (Canceled)

10. (Currently Amended) The method according to claim [[9]] 1, wherein said retrieving step includes receiving a subscriber data message including said stored roaming area information from said database.

11. (Canceled)

12. (Currently Amended) The method according to claim [[9]] 1, wherein said retrieving step includes receiving a terminating call routing message including said stored roaming area information from said database.

13. (Original) The method according to claim 12, wherein said terminating call routing message is based on a mobile applications protocol.

14. (Currently Amended) The method according to claim 12, wherein said roaming area information is subsequently included in an initial address message of an ISUP Integrated Services Digital Network User Part (ISUP) message.

15. (Original) The method according to claim 1, wherein said roaming area information includes a roaming area identity.

16. (Original) The method according to claim 1, wherein said roaming area information includes a location area identity.

17. (Original) The method according to claim 1, wherein said database includes a home location register.

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18. (Original) The method according to claim 1, wherein said database includes a guest location register.

19. (Original) The method according to claim 1, wherein said database includes a mobile switching center/visitor location register.

20. (Original) The method according to claim 1, wherein said step of detecting includes detecting when said mobile terminal enters a new location area, said new location area being associated with said new roaming area.

21. (Canceled)

22. (Currently Amended) A system for locating a mobile terminal in a mobile communications network after location information for the mobile terminal has been lost by a serving mobile switching center (MSC), said system comprising:

a ~~mobile switching center~~ serving MSC adapted to detect when said mobile terminal has entered a new roaming area within the service area of the serving MSC and to obtain [[a]] roaming area information of said new roaming area, said new roaming area being comprised of two or more location areas, each of said two or more location areas being comprised of one or more cells; and

a database connected to ~~said mobile switching center~~ the serving MSC and configured to store said roaming area information;

wherein ~~said mobile switching center~~ the serving MSC is further adapted to retrieve the roaming area information from the database and to issue a primary page for said mobile terminal within said new roaming area using said roaming area information stored in said database whenever the serving MSC loses the location information for the mobile terminal.

23. (Canceled)

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24. (Currently Amended) The system according to claim ~~[[23]]~~ 22, wherein ~~said mobile switching center~~ the serving MSC is further adapted to send ~~[[a]]~~ an update subscriber data message including said roaming area information to said database.

25. (Original) The system according to claim 24, wherein said update subscriber data message is based on a mobile applications protocol.

26. (Currently Amended) The system according to claim 24, wherein said database is further configured to send an update subscriber acknowledgment or negative acknowledgment message to ~~said mobile switching center~~ the serving MSC.

27-29. (Canceled)

30. (Currently Amended) The system according to claim ~~[[23]]~~ 22, wherein said database is further configured to send said stored roaming area information back to ~~said mobile switching center~~ the serving MSC.

31. (Currently Amended) The system according to claim 30, wherein said stored roaming area information is sent back to ~~said mobile switching center~~ the serving MSC in a subscriber data message.

32. (Original) The system according to claim 31, wherein said subscriber data message is based on a mobile applications protocol.

33. (Original) The system according to claim 22, wherein said database sends said roaming area information to a transit mobile switching center via a terminating call routing message.

34. (Original) The system according to claim 33, wherein said terminating call routing message is based on a mobile applications protocol.

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35. (Currently Amended) The system according to claim 33, wherein said roaming area information is subsequently included in an initial address message of an ISUP Integrated Services Digital Network User Part (ISUP) message.

36. (Original) The system according to claim 22, wherein said database sends said roaming area information to a gateway mobile switching center via a terminating call routing message.

37-38. (Canceled)

39. (Original) The system according to claim 22, wherein said roaming area information includes a roaming area identity.

40. (Original) The system according to claim 22, wherein said roaming area information includes a location area identity.

41. (Original) The system according to claim 22, wherein said database includes a home location register.

42. (Original) The system according to claim 22, wherein said database includes a guest location register.

43. (Currently Amended) The system according to claim 22, wherein said database is ~~said mobile switching center~~ integral in the serving MSC.

44-45. (Canceled)

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46. (New) In a mobile communications network, a method of restoring location information for a mobile terminal operating within a service area of a serving mobile switching center (MSC) after the location information has been lost by the serving MSC, the method comprising the steps of:

prior to losing the location information:

defining two or more roaming areas within the service area of the serving MSC, each of said roaming areas comprising two or more location areas, and each of the two or more location areas being comprised of one or more cells; and

storing in a database, an identity of a roaming area where the mobile terminal is located; and

after losing the location information:

retrieving by the serving MSC, the identity of the roaming area from the database; and

primary paging the mobile terminal within the identified roaming area.

47. (New) The method of claim 46, further comprising the steps of:

determining whether a paging response is received from the mobile terminal in response to primary paging the mobile terminal within the identified roaming area; and

if no paging response is received, globally paging the mobile terminal in the service area of the serving MSC.